

PATENT**D0932-00383
[I-8766]****III. Remarks**

Claims 1, 3, 4, 7, 8, 10-16 and 20-35 stand rejected.

Claim 35 has been amended to correct its recitation of "insulation manufacturing system of claim 25" to "method of claim 25."

Reconsideration and withdrawal of the rejection of these claims are respectfully requested in view of the following arguments.

A. Rejection under 35 U.S.C. §102**1. Claims 1, 3-4, 16, 21 and 32-34**

The Action rejects Claims 1, 3-4, 16, 21 and 32-34 as being anticipated by U.S. Patent No. 2,830,648 to Haddox. Of these claims, Claims 1 and 16 are independent claims.

Independent Claim 1 is directed to an insulation manufacturing system having a curing oven for heating an uncured or partially cured insulation mat. The curing oven tower has a plurality of vertical oven zones and a conveyor system. The conveyor system has a plurality of pairs of counter-rotating conveyors disposed to move the insulation mat through the vertical oven zones, where the insulation mat is disposed between said counter-rotating conveyors.

It is clear from Claim 1 that the recited conveyor system moves the insulation mat through the vertical oven zones and, therefore, must be located within the curing oven tower housing the vertical oven zones. As explained below, such a system is not disclosed by Haddox.

In rejecting Claim 1, the Examiner cites to oven 40 of Haddox and concludes that the oven includes a plurality of vertical oven zones 39 and 31 and a conveyor system 26 for moving the insulation mat through the vertical oven zones.

Haddox discloses that the oven of Haddox's system is "oven 40." (Col. 2, Lines 60-61). Element 31 of the system identified by the Examiner as one of the claimed vertical oven zones is

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a vacuum chamber connected to vacuum pump 34 that attracts the fibers 20 to the surface of the belt and retains the fibers against the belt to build up the mat 37. (Col. 2, Lines 24-32). This vacuum chamber merely accumulates fibers on a belt and is not a vertical oven zone with a heat source.

The focus, therefore, must remain with "oven 40" of Haddox, a side view of which is shown in FIG. 1. The Examiner identifies conveyor system 26 as including conveyors 58, 60, 37 and 27. Reference 37 refers to the fibrous mat, not a conveyor. (Col. 2, Line 61). Conveyor 58 includes conveyors 59, 60 and is disposed after oven 40 to move the mat 37 to wind up unit 62. (Col. 3, Lines 22-24). Reference 27 refers to rollers that support a belt. (Col. 2, Line 22). None of these features identified by the Examiner are within the oven 40. Within and throughout oven 40, as best seen in FIG. 1, the conveyor only moves the mat 37 in a horizontal direction between upper and lower oven sections 38 and 39. (See FIG. 1; Col. 2, Lines 58-73). The system of Haddox does not include "a plurality of vertical oven zones" in a curing oven tower through which a conveyor system moves the insulation mat. Put another way, the oven 40 of Haddox includes a single horizontal oven zone defined between sections 38 and 39 of oven 40, not plurality of vertical oven zones.

For at least these reasons, it is submitted that Haddox does not teach a curing oven tower comprising a plurality of vertical oven zones comprising heat sources, and a conveyor system comprising a plurality of pairs of counter-rotating conveyors disposed to move said mat through said plurality of vertical oven zones for curing, as claimed in Claim 1.

Dependent Claim 3 recites that the conveyor system moves the mat both horizontally and vertically through the curing oven tower in a serpentine path. Again, focusing on oven 40, the Haddox system moves mat 37 through the oven 40 in a purely horizontal direction, which is not a serpentine path as claimed.

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Claim 4, which depends from Claim 3, recites that the serpentine path vertically overlaps itself. Clearly, the path of mat 37 through the oven 40 of Haddox does not vertically overlap itself.

Therefore, it is submitted that dependent Claims 3 and 4 are also not anticipated by Haddox.

Independent Claim 16 recites that the conveyor system comprises cooperable pairs of counter rotating conveyors arranged for moving the insulation mat both vertically and horizontally **through the curing oven tower in a serpentine path**. The curing oven tower is recited as the portion of the manufacturing system that "heat[s] an uncured or partially cured fiberglass insulation mat" and that includes the "heat source." Per the discussion of Haddox above, Haddox's system includes an oven 40. Mat 37 is only conveyed horizontally through oven 40, not vertically and horizontally through the oven in a serpentine path as claimed. For at least this reason, it is submitted that Haddox does not teach the recited conveyor system and oven tower of Claim 16 and dependent Claim 21.

Claims 32 and 34 depend from Claims 1 and 16, respectively, and are, therefore, also not anticipated by Haddox.

Claim 33 depends from Claim 13, which does not stand rejected as being anticipated by Haddox. Accordingly, withdrawal of the anticipation rejection of Claim 33 is requested.

For at least the reasons set forth above, reconsideration and withdrawal of the rejection of Claims 1, 3-4, 16, 21 and 32-34 are respectfully requested.

2. Claims 8, 10-15, 22-29 and 34

The Action rejects Claims 8, 10-15, 22-29 and 34 as being anticipated by U.S. Patent No. 2,467,291 to Brelsford et al. ("Brelsford"). Of these claims, Claims 8 and 22 are independent claims.

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Claim 8 is directed to a method of curing insulation comprising moving an uncured or partially cured insulation mat through a curing oven tower comprising a plurality of vertical oven zones. As described below, Brelsford does not teach a curing oven including the recited “plurality of vertical oven zones” nor moving an insulation mat through a plurality of vertical oven zones.

FIG. 1 shows the complete system of Brelsford including curing oven 74, which is shown best in the side view of FIG. 6 and end view of FIG. 7. A single floor apron conveyor 51 brings the mat fibers laid by cross lapper into the curing oven 74. (FIG. 1) The oven of Brelsford includes a lower conveyor 81 and an upper conveyor 82 (FIG. 6 and 7)

Within the curing oven, the positioning of the upper and lower conveyors 81, 82 determines the thickness of the mat. (Col. 8, Lines 41-48). As shown in FIGS. 6 and 7, each conveyor 81, 82 rotates to move the mat through the curing oven. Element 86 identified by the Examiner as evidence of a “serpentine path” of the mat is merely a sprocket 86 positioned to provide “an upward tilt or angularity” at the inlet of the oven “to accommodate the maximum thickness of the mat as it arrives from the crosslapping operation and provides for gradually reducing its thickness to the desired amount in the curing oven.” (Col. 8, Lines 44-55). The lower conveyor 81 is fixed. (Col. 8, Line 56). The upper conveyor is adjusted to the proper position to provide a desired thickness. (Col. 10, Lines 20-26). The mat “arrives from the cross lapper on the floor apron [and] is transferred . . . onto the lower conveyor.” Id. The upper conveyor “squeezes the mat to the desired thickness.” Id.

The mat can be seen in FIG. 7 between the conveyors 81, 82 and the burners 98. The oven of Brelsford does not include a plurality of vertical oven zones comprising heat sources as claimed. It is believed that rows of burners 98 are horizontally spaced along the length of the oven to provide one or more horizontal, not vertical, oven zones. In the Action, the Examiner cites to “vertical oven zones 112 and 113” in Brelsford’s system. However, Brelsford’s description provides that its oven is broken functionally into three horizontal zones, diagrammatically delineated by vertical dashed line partition references 112, 113:

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In order to uniformly heat the mat during curing, besides locating the burners between the upper and lower conveyors to evenly distribute the heat, the oven is partitioned into three zones, the vertical partitions shown diagrammatically by dotted lines 112 and 113. These partitions have openings therethrough to permit passage of the conveyor flights and mat. The first zone extending from the inlet end of the oven to partition 112 has a top outlet breeching 115 connected to an exhaust fan by pipe 116. Thus, in the first zone the heated air is drawn upwardly through the mat and is discharged from the oven above. In the second zone between partitions 112 and 113 the heated air is withdrawn from the oven through pipe 117 positioned above the mat and is discharged by means of a blower fan 118 back into the oven below the mat through pipe 119. . . In the third zone between partition 113 and the discharge end of the oven heated air from the oven is withdrawn from below the mat through pipe 121 and is discharged by fan 122 through pipe 123 into the oven above the mat after with a portion is exhausted through outlet breeching 114.

Col. 9, Line 51-Col. 10, Line 5.

The direction of conveying of the mat during its formation prior to curing oven 74 is of no consequence with respect to the claimed method as it does not constitute moving the mat through an oven zone. As is clearly shown in Figures 5-7, the mat is conveyed in only the horizontal direction during curing. The oven zone or zones are arranged horizontally between burners 98. The oven of Brelsford, therefore, does not include a plurality of vertical oven zones through which a mat is conveyed.

Therefore, from these figures and their accompanying description, it is clear that Brelsford does not teach a curing oven tower comprising a plurality of vertical oven zones as claimed in Claim 8 nor moving an insulation mat through the "vertical oven zones" as claimed. It is submitted, therefore, that independent Claim 8 is not anticipated by Brelsford.

Claim 10 requires that the insulation mat is moved both horizontally and vertically through the curing oven in a serpentine path. As described above, the mat of Brelsford is only moved horizontally through the curing oven. The top conveyor 82 is initially angled to provide a

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input taper that pinches the loose fibers. Bottom conveyor 81 exists entirely in one plane. It is submitted that this compression configuration, which is provided before the mat fibers are exposed to burners 98, does move the mat both vertically and horizontally through the plurality of vertical oven zones, and certainly not in a serpentine path as claimed in claim 10, nor in a serpentine path that overlaps itself as claimed in Claims 11-13.

Claim 22 is also directed to a method of curing insulation and comprises the step of moving the uncured or partially cured mat both horizontally and vertically in a serpentine path through a curing oven tower comprising a heat source. Clearly, as discussed above and as seen in FIGS. 6 and 7 of Brelsford, Brelsford's conveyors 81 and 82 cooperate to move the insulation mat in a purely horizontal direction through oven 74, which is in no way "horizontally and vertically in a serpentine path." It is submitted, therefore, that Claim 22 and dependent Claims 23-29 are not anticipated by and are allowable over the cited reference.

Claim 34 depends from independent Claim 16, which is not rejected as being anticipated by Brelsford. Withdrawal of the rejection of claim 34 is requested.

In accordance with the foregoing arguments, reconsideration and withdrawal of the rejection of Claims 8, 10-15, 22-29 and 34 are respectfully requested.

B. Rejection under 35 U.S.C. §103

The Action rejects Claims 7 and 20 as being obvious from Haddox in view of U.S. Patent No. 3,413,731 to Fleissner. Claims 7 and 20 depend from independent Claims 1 and 16, respectively, which are allowable as argued above. Accordingly, reconsideration and withdrawal of the rejection of Claims 7 and 20 are respectfully requested.

The Action also rejects Claim 30 as being obvious from Haddox in view of U.S. Patent No. 6,357,504 to Patel et al. ("Patel"). Claim 30 depends from Claim 3, which is allowable as discussed above. It is also submitted, however, that Claim 30 is independently allowable for the following reasons.

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Claim 30 recites, with emphasis, “wherein a *portion of said rotating conveyors cooperating to move said insulation mat vertically forms nip zone with a portion of said rotating conveyors cooperating to move said insulation horizontally*, said nip zone **including at least one inclined belt for receiving said insulation mat.**” Claim 30, therefore, requires not only that the nip zone is formed by conveyors that are moving the insulation mat horizontally and those that are moving the mat vertically, but also “includes at least one inclined belt for receiving said insulation mat.” The nip zone and conveyors must be within the curing oven.

The “nip” described by Patel at is shown in FIG. 6 is formed between rotating pressing rolls 116A and 116B. These rolls pinch a sheet 64a against the top surface of the mat, which is conveyed in a purely horizontal direction by single horizontal conveyor 112 (which, incidentally, forms no part of the nip of Patel). Simply, Patel does not disclose, and the combination of Haddox and Patel does not provide, a nip zone formed by horizontal and vertical cooperating conveyors nor a nip zone “including at least one inclined belt for receiving said insulation mat.”

Per the foregoing, reconsideration and withdrawal of the rejection of Claim 30 are respectfully requested.

The Action also rejects Claim 31 as being obvious from Brelsford in view of Patel. Claim 31 depends from Claim 22, which is allowable as discussed above. It is also submitted, however, that Claim 31 recites the “nip zone” feature of Claim 30 and is, therefore, independently allowable over the cited combination for at least the reasons set forth above in connection with Claim 30.

Per the foregoing, reconsideration and withdrawal of the rejection of Claim 31 are respectfully requested.

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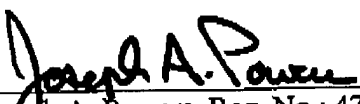
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IV. Conclusion

In view of the foregoing remarks and amendments, Applicants submit that this application is in condition for allowance at an early date, which action is earnestly solicited.

The Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account 04-1679.

Respectfully submitted,

Dated: 4/19/06
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